

The first part of this preliminary paper discusses the many varied properties of these different woods, with regard to color, density, hardness, presence or absence of year-rings, pore-rings, size and contents of vessels, distribution of parenchyma, etc., and also the numerous contradictory definitions of mahogany to which these structural differences have given rise. To the general public and to the majority of woodworkers, mahogany is a reddish wood, generally with some distinct figure and texture, and valued in proportion to the beauty of its figure and the resistance of the wood to splitting and warping. Obviously such a definition is not sufficient. Reddish color and figure, both emphasized as distinct diagnostics of the original mahogany, *Swietenia mahogoni*, of course are essential, as also is the character described as "roeyness." According to DIXON, we may recognize as mahogany "all red or red-brown timbers in which the fibers of the adjacent layers cross each other obliquely, and so give rise to a play of light and shade on longitudinal surfaces ('roe'), greatly emphasizing the figure and conferring on the wood a freedom from splitting and warping." In addition, a mahogany should have scattered vessels, isolated or in small radial groups; the circumvasal parenchyma should be thin, and the medullary rays not more than 9 cells in width and under 2 mm. in height. In other respects the different woods designated by this name exhibit great structural variability.

The second part of the article presents the key and well written anatomical diagnoses of Western, African, Asiatic, and Australasian mahoganies. The 23 plates are from photomicrographs of transverse, radial, and tangential sections of the various woods, and are intended to show their distinct microscopic features.—LADEMA M. LANGDON.

Comparative salt absorption.—STILES and KIDD²¹ have published two papers on the mechanism of salt absorption by disks of carrots and of potato tubers. Their method of study was to immerse a quantity of uniform disks of the material in salt solutions, and follow the course of absorption by the changes in the electrical conductivity. Although the conductivity is affected, not only by absorption of salt, but also by exosmosis, the writers believe that the latter is small, especially in the case of carrot. Potassium, sodium, and calcium chlorides are readily absorbed in all concentrations from N/10 to N/5000. The initial rate of absorption is roughly proportional to the concentration, but after a time this does not hold. The ratio of final internal concentration (arrived at by calculation) to final external concentration they call the absorption ratio. With low external concentrations this ratio is many

²¹ STILES, W., and KIDD, F., The influence of external concentration on the position of the equilibrium attained in the intake of salts by plant cells. Proc. Roy. Soc. B 90:448-470. 1919.

———, The comparative rate of absorption of various salts by plant tissue. Proc. Roy. Soc. B 90:487-504. 1919.

times unity, but with higher concentrations it becomes considerably less than unity. Although this relation can be expressed by the adsorption formula $y = kc^m$ (y is the final internal, c the final external concentration, and k and m are constants), the writers do not feel the data justify the conclusion that absorption of these salts is an adsorption phenomenon.

Kations are absorbed initially in the order K, [Ca, Na], Li, [Mg, Zn], Al; as equilibrium is approached the order is K, Na, Li, [Ca, Mg]. The initial order for the anions is SO_4 , NO_3 , Cl; the final order, NO_3 , Cl, SO_4 . "Although TROENDLE'S view, that in any group of the periodic classification the metallic ions are absorbed more rapidly the higher the atomic weight, is not contradicted, yet the view that the initial rate of absorption is largely dependent upon the mobility of the ions or diffusibility of the salt is equally well supported, and can be put forward provisionally as a more reasonable hypothesis."

Another paper, by STILES and JÖRGENSEN,²² is polemical with THODAY, concerning the method of estimating the osmotic pressure of sap by the swelling or shrinkage of the tissue when immersed in salt solutions. Using sections of the root of the red beet, they found that they neither gained nor lost in weight in 0.40 N NaCl, and that this concentration was also just insufficient to cause plasmolysis. The writers therefore maintain that this concentration is *approximately* isotonic with the beet root sap.—J. J. WILLAMAN.

Tyrosin in fungi.—DODGE²³ reports some investigations on the chemistry of the tyrosinase reaction in the fungi which turn blue or black on exposure to air. The fungi were sliced, dried, and then ground into a flour, and this fungus flour used in the investigation. "In the work with tyrosin, the dried fungus flour was added directly to the substrate, toluol added, and the mixture left to extract the enzym and the enzym to react with the tyrosin." The author studied the reactions with the amino, carboxyl, and phenol groups. A modified form of the "micro" VAN SLYKE apparatus was used for the determination of the amino nitrogen, the permute method of FOLIN and BELL for the determination of ammonia, and the colorimeter method of DUGGAR and DODGE for the determination of the carboxyl and phenol groups.

The following conclusions are drawn from these investigations: "(1) that the tyrosinase reaction is not a deamination, although it is possible that deaminases may exist in the same organism with tyrosinase; (2) that the tyrosin molecule is synthesized into a larger, more complex molecule, in which part of the carboxyl groups is either split off as carbon dioxide, or more probably bound in the molecule so that it will not react with alkali."—J. WOODARD.

²² STILES, W., and JÖRGENSEN, W., On the relation of plasmolysis to the shrinkage of plant tissue in salt solutions. *New Phytol.* 18:40-50. 1919.

²³ DODGE, C. W., Tyrosin in the fungi: chemistry and methods of studying the tyrosinase reaction. *Ann. Mo. Bot. Gard.* 6:71-92. 1919.